

Geometry

Name ANSWER KEY

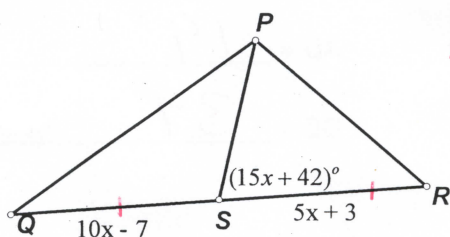
Unit 5 Worksheet 3 Medians & Altitudes

Period _____ Date _____

1.) A median connects a VERTEX to the MIDPOINT of the opposite side.

2.) The point where all of the medians meet in a triangle is called the CENTROID.

3.) If \overline{PS} is a **median** of $\triangle PQR$, mark the triangle and find x and $m\angle PSR$.



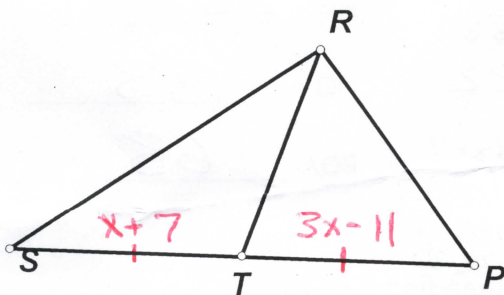
$$\begin{aligned} 10x - 7 &= 5x + 3 \\ 5x - 7 &= 3 \\ 5x &= 10 \\ x &= 2 \end{aligned}$$

$$x = \underline{2}$$

$$m\angle PSR = \underline{72^\circ}$$

$$\begin{aligned} \angle PSR &= 15x + 42 \\ &= 15(2) + 42 \\ &= 72 \end{aligned}$$

4.) If \overline{RT} is a **median** and $ST = x + 7$, $TP = 3x - 11$, mark the triangle and find x , ST and TP .



$$\begin{aligned} x + 7 &= 3x - 11 \\ 7 &= 2x - 11 \\ 18 &= 2x \\ 9 &= x \end{aligned}$$

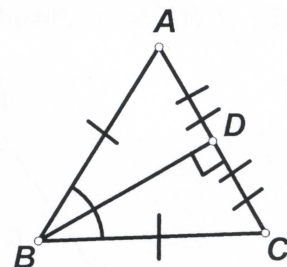
$$x = \underline{9}$$

$$ST = \underline{16}$$

$$TP = \underline{16}$$

5.) What segment is a median in the triangle at the right? \overline{BD}

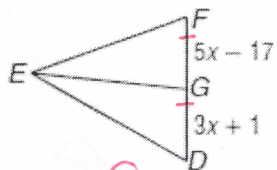
What kind of triangle is $\triangle ABC$? ACUTE ISOSCELES



For number 6 & 7, solve for x given the following median.

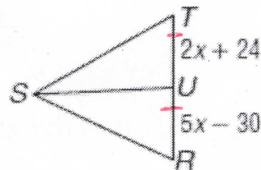
6.) \overline{EG}

7.) \overline{SU}



$$x = \underline{9}$$

$$\begin{aligned} 5x - 17 &= 3x + 1 \\ 2x - 17 &= 1 \\ 2x &= 18 \\ x &= 9 \end{aligned}$$



$$x = \underline{18}$$

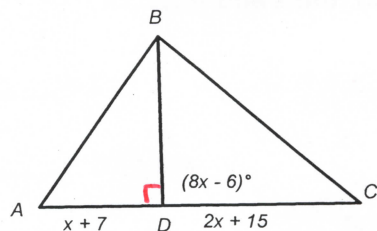
$$\begin{aligned} 2x + 24 &= 5x - 30 \\ 24 &= 3x - 30 \\ 54 &= 3x \\ 18 &= x \end{aligned}$$

7.) An altitude is also called the HEIGHT of the triangle and it is PERPENDICULAR to a side or the line containing the side. One of its endpoints must be a VERTEX of the triangle.

8.) The point where all of the altitudes meet is called the ORTHOCENTER.

9.) If \overline{BD} is an **altitude** of $\triangle ABC$ find x , AD and DC .

$$\begin{aligned} 8x - 6 &= 90 \\ 8x &= 96 \\ x &= 12 \end{aligned}$$

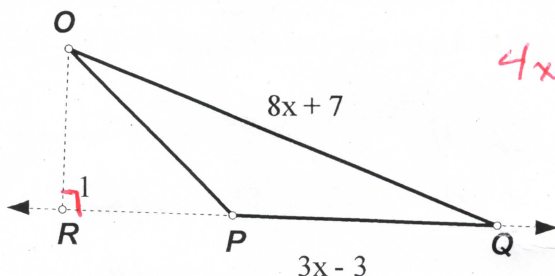


$x = \underline{12}$

$AD = \underline{19}$

$DC = \underline{39}$

10.) If \overline{OR} is an **altitude**, and $\angle 1 = 4x + 2$, mark the triangle and find x , OQ and PQ .



$$\begin{aligned} 4x + 2 &= 90 \\ 4x &= 88 \\ x &= 22 \end{aligned}$$

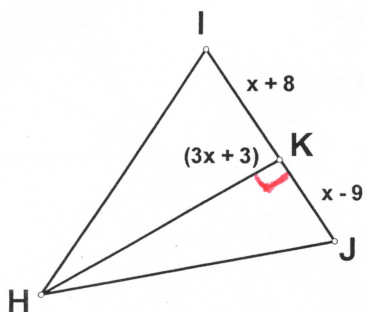
$x = \underline{22}$

$OQ = \underline{183}$

$PQ = \underline{63}$

$$\begin{aligned} OQ &= 8x + 7 \\ &= 8(22) + 7 \\ &= 176 + 7 \\ &= 183 \end{aligned}$$

11.) If \overline{HK} is an altitude of $\triangle HIJ$ and $m\angle IKH = 3x + 3$ then find x , IK , KJ .



$$\begin{aligned} 3x + 3 &= 90 \\ 3x &= 87 \\ x &= 29 \end{aligned}$$

$x = \underline{29}$

$IK = \underline{37}$

$KJ = \underline{20}$

12.) In isosceles $\triangle ABC$, \overline{BD} is 3 things:

1) \perp BISECTOR 2) \angle BISECTOR

3) MEDIAN 4) ALTITUDE

